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AMSAT NEWS SERVICE
ANS-127

ANS is a free, weekly, news and information service of AMSAT North America, The Radio Amateur Satellite Corporation. ANS reports on the activities of a worldwide group of Amateur Radio operators who share an active interest in designing, building, launching and communicating through analog and digital Amateur Radio satellites.

Please send any amateur satellite news or reports to:
ans-editor at amsat.org

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* Volunteers are needed to help at the AMSAT booth at Dayton. Gould *
* WA4SXM, is looking for volunteers to help man the AMSAT booth dur- *
* ing the 2012 Hamvention. People are needed all 3 days for 2 hour *
* shifts. Please send the days and times you are available to help *
* as well as how many shifts you are willing to work via e-mail to *
* wa4sxm at amsat.org. *
* Monitor http://www.amsat.org/amsat-new/hamvention/2012/Dayton.php *
* for the latest AMSAT at Dayton news and developments *
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SB SAT @ AMSAT $ANS-127.01
ANS-127 AMSAT News Service Weekly Bulletins

AMSAT News Service Bulletin 127.01
>From AMSAT HQ SILVER SPRING, MD.
May 6, 2012
To All RADIO AMATEURS
BID: $ANS-127.01

2012 AMSAT Forum at Dayton - Saturday May 19

The AMSAT Forum at the 2012 Dayton Hamvention will be on Saturday morning May 19 from 11:15 to 13:30 in Forum Room 5. The moderator will be Alan Biddle, WA4SCA

The speakers will be:

Barry Baines, WD4ASW; AMSAT Status Report

Barry, AMSAT President, will highlight recent activities within AMSAT, and discuss some of the challenges and accomplishments of the organization.

Mark Hammond, N8MH; AMSAT Educational Relationships

Mark, AMSAT VP of Educational Relationships, will discuss his education activities.

Gould Smith, WA4SXM; ARISSat-1 Operation in Space

Gould, AMSAT Project Manager for ARISSat-1, will talk about its operation aboard the ISS, the deployment and operations this past fall and winter.

Tony Monteiro, AA2TX; Project Fox - AMSAT's First CubeSat

Tony, AMSAT Engineering VP, will discuss the design and status of Project-FOX.

Howard Long, G6LVB; "FUN in Space for All!"

Howard, AMSAT-UK Committee, will discuss the FUNcube project which will enable amateurs and students to have FUN in space. For amateurs, the spacecraft will carry conventional UHF to VHF linear transponders. For students of all ages, the same space-craft will provide strong telemetry transmissions which they can easily receive at schools in support of science, technology, engineering, and math subjects (STEM).

[ANS thanks Gould Smith, WA4SXM and Alan Biddle, WA4SCA for the above information]

Fox-1 Satellite Project Team Completes Preliminary Design Review

The Fox Project completed its Preliminary Design Review (PDR) over three nights, 24-26 April 2012. Mechanical, RF, control, power, and related issues were reviewed. The current status was evaluated, and the needed development for various systems was refined. AMSAT Engin-eering Vice President Tony Monteiro, AA2TX, characterized the review as very productive.

Help Wanted Fox-1 Satellite

AMSAT is in need of an experienced RF designer for our Fox-1 satel-lite. Due to ITAR restrictions, you must be a US citizen or permanent resident. If interested please send an email with your phone number to Tony Monteiro - AA2TX@amsat.org

Fox-1 Targets Launch in 2013

Project ELaNa, NASA's "Educational Launch of NanoSat" managed by the Launch Services Program at the Kennedy Space Center, announced on February 10 that the AMSAT Fox-1 cubesat has been selected to join the program. AMSAT is working with NASA in a collaborative agreement where NASA will cover the integration and launch costs. Fox-1 was selected to join the NASA ELaNa program on merit in support of NASA strategic and educational goals.

AMSAT's Fox-1 project timeline is based on targeting a launch in the

second half of 2013. NASA will determine on which flight each of the Project ELaNa CubeSats are launched.

Highlights of the Fox-1 design include:

+ Fox-1 is designed as the immediate replacement for AO-51. Its U/V FM transponder with a VHF downlink will be easier to hear with small antennas.

+ The same radio equipment used for AO-51 (HT + handheld beam) can be used for Fox-1.

+ Fox-1 sends telemetry in a sub-audible band on the downlink allowing simultaneous voice contacts with telemetry decode. AMSAT will provide free sound-card PC software.

+ Includes science experiment using MEMS gyros being developed by Penn State students.

Find more details of AMSAT Fox-1 Project on-line at:
http://www.amsat.org/amsat-new/fox/

Donate to the Fox-1 Project Fund on-line at http://www.amsat.org; scroll down halfway to the PayPal donation widget - or at the AMSAT Store http://www.amsat-na.com/store/categories.php

NASA's Cubesat Launch Initiative web page can be found at:
http://www.nasa.gov/directorates/heo/home/CubeSats_initiative.html

[ANS thanks AMSAT Engineering Vice-President Tony Monteiro, AA2TX and Alan Biddle, WA4SCA for the above information]

AMSAT Awards

AMSAT Director Contests and Awards, Bruce Paige, KK5DO says congratulations are in order for our latest AMSAT Awards recipients.

The following have entered into the Satellite Communicators Club for making their first satellite QSO.
+ Brent Ocken, KJ6MRG
+ Elizabeth Royer, KB3WSW

The following have earned the AMSAT Communications Achievement Award.
Hector Luis Martinez Sis, CO6CBF, #547
+ Marcelo Teruel, IK0USO #549

The following have earned the South Africa Satellite Communications Achievement Award.
+ Hector Luis Martinez Sis, CO6CBF, #US178

The following have earned their Robert W. Barbee, Jr. W4AMI Award
+ Tom Deeble, KA6SIP #77
+ Clayton Coleman, W5PFG #78

To see all the awards visit http://www.amsat.org.

[ANS thanks Bruce Paige, KK5DO for the above information]

Satellite Operations Planned for Worldwide Museum Ships Weekend

Museum Ships Weekend Coming Up June 2-3, 2012
by Allen F. Mattis, N5AFV, n5afv@amsat.org

The worldwide Museum Ships Weekend Event (MSWE) will be held for two days, June 2-3, 2012. Last year 83 ships in 13 countries around the world participated in the event. Amateur radio operators make special event contacts from these museum ships on all amateur radio bands with most of the contacts taking place on the HF bands. In the past several years only two or three museum ships in North America have made satellite contacts during the event.

This year a number of Houston area AMSAT members, W5ACM, N5AFV and WC5WM, will participate with the Brazos Valley Amateur Radio Club (BVARC) operating club station KK5W from Seawolf Park on Pelican Island in Galveston, Texas. Seawolf Park is home to two Second World War vintage museum ships - the destroyer escort USS Stewart (DE-238) and the submarine USS Cavalla (SS-244). As a result, a contact with KK5W counts for two ships. Amateur radio operators who make contacts with 15 or more ships qualify for a handsome certificate.

The BVARC KK5W station plans to operate the afternoon passes of AO-27 and FO-29 on Saturday June 2nd and hope other AMSAT members will be operating from other ships. This will be their fifth year participating in the MSWE and hope to make their first MSWE satellite contact with another museum ship this year.

If any AMSAT members are interested in this event they may visit the MSWE website: http://www.nj2bb.org/museum/index.html to find out if any museum ships near them are participating.

[ANS thanks Allen Mattis, N5AFV for the above information]

Changes to the IARU Satellite Advisor Region 1

The International Amateur Radio Union (IARU) Satellite Advisor's Advisory Panel assists builders and prospective builders of satellites that will operate on frequencies allocated by the ITU to the Amateur Service. This panel provides frequency coordination, a comprehensive set of standards guidelines, and international forums.

The IARU Satellite Adviser is Hans van de Groenendaal, ZS6AKV. This week AMSAT-DL President Peter G[illegible]lzow, DB2OS recommended to the IARU Satellite Adviser that Mike Rupprecht takes over membership of the advisory panel from Norbert Nothoff. Hans agreed to appoint Mike, DK3WN as a panel member. He thanked Norbert, DF5DP for his support as a member of the Advisory panel for many years and is looking forward to working with Mike.

Mike Rupprecht, DK3WN will help with the IARU Satellite Frequency Coordination process in Region 1 and in particular in Germany. Mike is very active and well known on the satellite bands and Internet boards, and he has particularly profound knowledge of all cubesat operations. He is also very well known in the community of cubesat operators, including excellent communication connections with those groups.

Mike Rupprecht, DK3WN will support Norbert Nothoff, DF5DP and take over the coordination process of satellite projects from him, which includes correspondence with the coordination group and the satellite operators.

Norbert Nothoff, DF5DP will continue to stay in charge of anything which is related to government issues (government and office liaison, laws, bylaws, and regulations of satellite operations) in Germany.

The following serve on the IARU Satellite Advisor's Advisory Panel:

IARU Satellite Advisor
Hans van de Groenendaal, ZS6AKV

Region 1
Graham Shirville, G3VZV
Mike Rupprecht, DK3WN

Region 2
Lee McLamb, KU4OS
Art Feller, W4ART

Region 3
Shizuo Endo, JE1MUI

Special Advisors
Ray Soifer, W2RS
Jan King, VK4GEY/W3GEY

The IARU Satellite page can be found at:
http://www.iaru.org/satellite/

The status of all satellites requesting coordination and those which have already received coordination can be found at:
http://www.amsat.org.uk/iaru/

[ANS thanks AMSAT-DL President Peter G�lzow, DB2OS for the above information]

New Frequencies for AMSAT-UK FUNcube-1

This DNEPR-1 launch in October 2012 could carry around 10 amateur radio satellites including FUNcube-1 into space. As a result the International Amateur Radio Union (IARU) satellite advisory panel have had to carefully coordinate the planned operating frequencies in order to minimize the risk of interference between FUNcube-1 and other payloads on the same launch.

The IARU Amateur Satellite Frequency Coordination Panel have now confirmed the following frequencies for FUNcube-1 (these frequencies replace those previously announced)

FUNcube-1 New Frequencies

Inverting linear transponder
Uplink 435.150 – 435.130 MHz (replacing 435.080 - 435.060 MHz)
Downlink 145.950 – 145.970 MHz (replacing 145.960 - 145.980 MHz)

Telemetry: 145.935 MHz BPSK (replacing 145.955 MHz)

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UKube-1
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Uplink    435.060 - 435.040 MHz
Downlink  145.940 - 145.960 MHz

Telemetry 145.840 MHz
FUNcube sub system beacon 145.925 MHz
S Band downlink 2401.500 MHz
myPocketQub 437.425 - 437.525 MHz

Delfi-n3Xt
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Inverting linear transponder:
Uplink     435.530 - 435.570 MHz
Downlink   145.880 - 145.920 MHz

Telemetry  145.870 MHz and 145.930 MHz
High Speed 2405.00 MHz

Also on this launch two additional satellites Triton-1 and Triton-2
will include two similar secondary amateur radio payloads, being two
single channel mode U/V (435-145MHz) FM to DSB transponders. After
their three month science mission is complete plans are to have the
satellite continue in the Amateur Satellite Service for as long as
possible.

Triton-1
--------
Main Downlink   145.815 MHz (FM to DSB transponders similar to AO-16)
Backup Downlink 145.860 MHz
The UHF uplink frequencies will be announced by the project team
once the satellite becomes available for amateur operations.

Triton-2
--------
Main Downlink   145.860 MHz FM to DSB transponder
Backup Downlink 145.815 MHz
S-band downlink 2408.00 MHz FM to FM  transponder
The UHF uplink frequencies will be announced by the project team
once the satellite becomes available for amateur operations.

The IARU Satellite Coordination data for all of the satellites can
be found at: http://www.amsat.org.uk/iaru/

Gunter's Space Page (September 2012) lists the proposed manifest
for the DNEPR-1 launch: http://space.skyrocket.de/doc_chr/lau2012.htm

[ANS thanks AMSAT-UK and the IARU Satellite Advisory Panel for the
 above information]


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Delfi-C3 (DO-64) Celebrates 4 Years On-Orbit

The Technical University of Delft in the Netherlands celebrated the
fourth anniversary on-orbit of their student-developed, and -built
Delfi-C3 3U Cubesat. Launched on April 28, 2008 aboard PSLV-C9 it
was also designated DO-64 by AMSAT.

Delfi-C3 the first nano-satellite project from the Delfi program of
TU Delft. The program gives students the opportunity to gain practi-
cal experience, but the university would also develop with new tech-
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nology. A small satellite is a relatively inexpensive test platform for new technology of Dutch aerospace companies including thin-film solar cells of Dutch Space solar and autonomous wireless sensors.

This satellite also invited amateur radio participation to receive its telemetry downlink using ordinary equipment used by amateur satellite operators. The Delfi-C3 team provides the RASCAL software to decode and forward the data to TU Delft. The software can be downloaded at: http://tinyurl.com/DelfiC3-RASCAL (www.delfispace.nl). The satellite continues to transmit telemetry for stations who wish to experiment using the BPSK decoder:

+ Primary telemetry downlink: 145.870 MHz 1200 Baud BPSK AX.25 400mW
+ Backup telemetry downlink: 145.930 MHz 1200 Baud BPSK AX.25 400mW
+ The 435 MHz up/145 MHz down linear transponder is out of service.

Delfi-C3 pioneer Jeroen Rotteveel said "It is great to see that our satellite is still performing, especially when you consider that it is an experimental satellite built by students. From this one small satellite project a complete nanosatellite program has been set up. A spin-off company, ISIS, focusing on providing components for small satellites was created."

Future satellite development at TU Delft includes:

Delfi-n3Xt

Delfi-n3Xt will fly an active attitude control system controlling the satellite's orientation of Delfi-n3Xt with a system of sensors so that the solar panels maintain optimum sun pointing. It will test a new type of engine for small satellites.

Delfi-n3Xt, equipped with a linear transponder will be launched in September, 2012 aboard a Russian Dnepr rocket along with dozens of other small satellites which include UKube 1, FUNcube 1, which all will carry an amateur radio linear transponder. Triton 1, and Triton 2 satellites on this launch will feature FM-to-DSB and FM-to-FM transponders.

QB50

After Delfi-n3Xt, TU Delft will work on two nano satellites to fly as part of the 50 Cubesat constellation in the QB50 project. QB50 is a European collaborative mission with fifty scattered satellites in orbit around the Earth performing measurements on the upper layer of the atmosphere.

OLFAR

This project will develop a radio-telescope based on a swarm of nano satellites in orbit around the moon measuring signals from deep space. OLFAR (Orbiting Low Frequency Antenna for Radioastronomy) is an important milestone from which Delfi-C3 was the first step.

Find more information about the TU Delft satellites at:
http://www.delfispace.nl
http://www.isispace.nl

[ANS thanks TU Delft, the Delfi-C3 Team, and AMSAT-UK for the above information]

Ecuador NEE-01 Pegasus Cubesat Plans Classroom Access to Satellite

Ecuador's first satellite NEE-01 Pegasus is slated to launch in October 2012 on the same DNEPR rocket as the AMSAT-UK FUNcube-1, UKube-1, Delfi-n3Xt, Triton-1, and Triton-2, along with several additional cubesats.

One of the satellite's objectives is to serve as a space platform for elementary education. The satellite will send two signals that will be received and decoded by the EXA's HERMES-A ground station in Guayaquil and then uploaded live to the Internet using Twitter and Facebook.

The first signal will contain text book questions and the second will contain an image related to the question. If the students are able to answer the question correctly they will be granted access to the video camera onboard the spacecraft and will be able to see earth from space as the astronauts see it in their space missions.

More advanced students will have access to the pure radio signal so they can try decoding it by themselves. The EXA will provide them with the appropriate support software free of charge.

There is an onboard camera to send live video from space from a 3 watt TV transmitter in the 902 MHz band along with a beacon that will send an ID and Ecuador's national anthem.

The cubesat will help monitoring near-earth objects from orbit using its onboard 720p HD video camera and will also help in the catalog and control of orbital debris (space junk), this new mission will turn the NEE-01 in to the first online, real time orbital video sentry for the planet, as the satellite has the capability to stream its video signal directly to the Internet.

Additional NEE-01 Pegasus Cubesat mission goals include:

+ Technological demonstration/Education
+ Test of real time video transmission
+ Test of Thermal/Radiation shield
+ Test of multiphase solar array
+ Test of passive antenna deployment
+ Test of carbon nanotubes thermal control system

AMSAT-UK posted news and photos of NEE-01 Pegasus at:
http://www.uk.amsat.org/6932

[ANS thanks AMSAT-UK for the above information]

Satellite Shorts From All Over

+ It is time to submit nominations for the upcoming open seats on the AMSAT-NA Board of Directors. Three directors and two alternate directors have terms expiring this year. The director seats open for election are held by Tom Clark, K3IO; Lou McFadin, W5DID; and Gould Smith, WA4SXM. The alternate director seats open for election are held by Mark Hammond, N8MH and Patrick Stoddard, WD9EWK. The AMSAT front page news at http://www.amsat.org has the instructions to submit your nominations.

+ The 2012 AMSAT Annual Meeting and Symposium will be held at the Holiday Inn, Orlando (Florida) Airport on October 26-28, 2012. The First Call for Papers has been issued. The Symposium Team requests a tentative title of your presentation as soon as possible, with final copy to be submitted by October 1 for inclusion in the printed proceedings. Abstracts and papers should be sent to Dan Schultz, N8FGV, at n8fgv@amsat.org. Watch for the latest 2012 Symposium information to be posted on the AMSAT web at: http://www.amsat.org/amsat-new/symposium/2012/index.php

+ The CQ Magazine News Room (http://www.cqnewsroom.blogspot.com/) has posted stories covering amateur satellite developments:
  o Japan Plans 5 Amateur Satellite Launches
  o Multi-Cubesat Launcher Built by Naval Postgraduate School
  o ANS Co-Editor Dee Interdonato, NB2F, Silent Key
  o Hams on 23 Centimeters Must Protect New FAA Radars

+ The ARISS contact with Flight Engineer Don Pettit and students at Flabob Airport in Jurupa Valley CA US that occurred on April 19 was featured on this week's episode of the Bob Heil & Gordon West "Ham Nation" video podcast. The ARISS project is the top story at about the 4-minute mark: http://twit.tv/show/ham-nation/46 Video filmed during the contact has also been posted on the Flabob site: http://www.iss-flabob.com (via Clint K6LCS)

+ OMG Space (http://visual.ly/omg-space?view[illegible]ue) was made by Margot Trudell as graphic design thesis project at Toronto[illegible]s OCAD University. The page displays the Sun, all the planets and all the distances separting them to scale. The quickest way to navigate our solar system is to click on the planet names on the bottom of the screen. You can also scroll up and down manually ... if only to see how long it takes you to not get anywhere - this is to scale, the distances are vast. (UniverseToday.com)

+ The next Hudson Valley Satcom net date is Thursday, May 10 at 8:00 PM EDT (UTC -4) on the 146.970 MHz repeater, and also on the N2EYH-L Echolink node. More info: http://www.hvsatcom.org/ (via Stu, WA2BSS)

+ Vince Waelti, K9TSU, Net Manager of the Satchat net on the AMSAT EchoLink server invites all radio amateurs to check-in when the net meets on the 1st and 3rd Saturday of the month 1900-2030 CDT (UTC-5). Vince says the new format of the net will be a roundtable format.

+ Congratulations to Al, W5LUA for working into state number 34 on 2304 MHz via a good tropo opening. Al worked North Carolina on April 28. That's really an amazing accomplishment. (via NP4Z on the moon-net list)

+ Check out Markarian's Chain. There are well over 100 galaxies in this image: http://tinyurl.com/Markarian-Chain (UniverseToday.com)

[ANS thanks everyone for the above information]

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In addition to regular membership, AMSAT offers membership in the

President's Club. Members of the President's Club, as sustaining donors to AMSAT Project Funds, will be eligible to receive additional benefits. Application forms are available from the AMSAT Office.

Primary and secondary school students are eligible for membership at one-half the standard yearly rate. Post-secondary school students enrolled in at least half time status shall be eligible for the student rate for a maximum of 6 post-secondary years in this status. Contact Martha at the AMSAT Office for additional student membership information. And with that please keep in mind the implicit curve equation produces the heart shape: (x^2 + y^2 - 1)^3 - x^2 * y^3 The web computation engine at: http://tinyurl.com/Equation-Engine (wolframalpha.com) will plot it for you. You may need to click the 'compute' orange button to the right of the equation.

73,
This week's ANS Editor,
JoAnne Maenpaa, K9JKM